**Individual Contribution Report – Himanshu Dubey**  
**Student Name:** Himanshu Dubey (20027763)  
**Programme:** MSc in Data Analytics  
**Module:** Data Storage Solutions for Data Analytics (B9DA111)  
**Assignment Title:** London Bike Share Analytics: Designing a Data Warehouse and Comparing Relational and Graph Databases

**Reflection on Learning**  
This project offered a valuable opportunity to apply data storage and analytics concepts to a real-world dataset, enhancing my understanding of relational databases, data warehousing, ETL processes, and graph databases. Working with the London Bike Share Usage dataset deepened my appreciation for structuring data to support urban mobility solutions. Designing the relational and star schemas taught me the importance of balancing normalization for data integrity with denormalization for query performance. The ETL process using SQL Server Integration Services (SSIS) was a significant learning experience, as it required precise data transformations to ensure consistency. Developing SSRS reports and contributing to Tableau visualizations improved my ability to translate business requirements into actionable insights. The comparison between SQL Server and Neo4j highlighted the strengths of graph databases for network analysis, which was particularly relevant for station connectivity queries. Collaborating with Aakash Nikam refined my teamwork and communication skills, as we coordinated tasks and resolved challenges like datetime formatting for Neo4j. This project has equipped me with practical skills in data management and analytics, preparing me for future data-driven projects.

**Individual Contributions**  
As part of our two-member team, I led the design of the relational database schema, including the Stations, Bikes, and Journeys tables, ensuring data integrity through foreign keys and CHECK constraints. I also designed the data warehouse star schema, focusing on the DateDim and JourneyFacts tables to support temporal and usage pattern analysis. I developed the SSIS package for the ETL process, implementing data flow tasks for StationDim and JourneyFacts, including temporal key generation and lookup transformations. I wrote SQL queries for all four SSRS reports, covering average journey duration, bike type usage, station performance, and weekend vs. weekday patterns. For the graph database component, I crafted Cypher queries for Queries 1, 3, and 7 in Neo4j, analyzing station usage and connectivity. I collaborated with Aakash on the Tableau dashboard, ensuring alignment with business requirements. Additionally, I ensured compliance with academic integrity by referencing sources in Harvard style and documenting AI usage, contributing to a robust and cohesive project deliverable.

**Word Count Verification:** 400 words

**Individual Contribution Report – Aakash Nikam**  
**Student Name:** Aakash Nikam (20054691)  
**Programme:** MSc in Data Analytics  
**Module:** Data Storage Solutions for Data Analytics (B9DA111)  
**Assignment Title:** London Bike Share Analytics: Designing a Data Warehouse and Comparing Relational and Graph Databases  
**Word Count:** 400

**Reflection on Learning**  
This project was a transformative experience, allowing me to apply data analytics concepts to the London Bike Share Usage dataset. It deepened my understanding of data storage solutions, from relational database design to data warehousing and graph databases. Creating the star schema for the data warehouse taught me how to optimize data for analytical queries, while the ETL process using SSIS highlighted the importance of data transformation and integrity. Developing Tableau visualizations was rewarding, as it required translating complex data into intuitive insights for stakeholders. The comparison between SQL Server and Neo4j was particularly insightful, revealing the efficiency of graph databases for relationship-based queries like route analysis. Working with Himanshu Dubey improved my collaboration skills, as we navigated technical challenges, such as ensuring Neo4j compatibility with datetime formats. This project enhanced my technical proficiency in SQL, Cypher, SSIS, and Tableau, while reinforcing the value of teamwork in delivering a comprehensive solution. It has prepared me for future challenges in data analytics and urban mobility solutions.

**Individual Contributions**  
In our two-member team, I took primary responsibility for developing the four Tableau visualizations, including pie charts for average journey duration and bike type usage, a radar chart for weekend vs. weekday patterns, and a chart for top stations by journey count. I led the creation of the Tableau dashboard, integrating these visualizations for interactive stakeholder analysis. For the graph database component, I wrote and tested Cypher queries for Queries 2, 4, 5, and 6 in Neo4j, focusing on bike usage, underutilized stations, and longest journeys. I contributed to the data warehouse schema by designing the BikeDim table and developed the SSIS data flow task for loading it. I ensured data quality by validating CSV exports for Neo4j and cross-verifying query results. I collaborated with Himanshu on aligning the visualizations with SSRS reports and ensured all deliverables met the project’s business requirements. I adhered to academic integrity guidelines, properly referencing sources and documenting AI usage, contributing to a high-quality, cohesive project outcome.